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The Official Dictionary of Telecommunications

- ◆ Computer Telephony ◆ The Internet ◆ IP Telephony ◆ Intranets, LANs & WANs
- ◆ Windows 95, NT, NetWare & Unix Networking
- ◆ Wired & Wireless Telecommunications
- ◆ Voice Processing ◆ Carrier Telephony
- ◆ The Intelligent Network ◆ ISDN & T-1
- ◆ Voice on The Internet & Intranets



by Harry Newton

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NEWTON'S TELECOM DICTIONARY

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ware computer telephony device. PATI stands for PC and Telephone Interface.

Pattern Recognition A small element of human intelligence. The ability to recognize and match visual patterns. (Auditory pattern recognition is the ability to recognize spoken words.) Pattern recognition basically works by having the computer seek out particular attributes of the character (assuming it's pattern recognition for reading words) and then having the computer compare what it finds to what's in its database of patterns. By a process of breaking down letters into curves and lines, and by a process of elimination, the computer can figure out what it's seeing. As Forbes said, "think of pattern recognition as a kind of super detective, a tireless if unimaginative collector of clues, distinguished not by brilliance, but by ceaseless legwork."

Pause This feature on some phone systems — especially the Northern Telecom Norstar — inserts a 1.5 second delay in a dialing sequence on an outside line.

PAX Private Automatic eXchange. Typically an intercom system not joined to the public telephone system. PAXs are more common in Europe, where it is common for business people to have two phones on their desk — one for internal intercom calls and one for external calls.

Pay Phone See PAYPHONE

Payload 1. From the perspective of a network service provider: of a data field, block or stream being processed or transported, the part that represents information useful to the user, as opposed to system overhead information. Payload includes user information and may include such additional information as user-requested network management and accounting information. In Sonet, the STS-1 signal is divided into a transport overhead section and an information payload section (similar to signaling and data). See SPE (Synchronous Payload Envelope) for a description of what would be found in the payload.

2. The activity carried out by a computer virus when it is activated by a triggering event. Depending on the virus, the payload may be as benign as putting a message on your screen or as destructive as erasing your hard disk or scrambling your data.

Payload Type Indicator Field PTI. A three-bit field in the ATM cell header that indicates the type of information being carried in the payload. The PTI is used to distinguish between cells carrying user data and those carrying service information such as call set-up and call termination.

Payphone Used to be just a public phone that accepted only coins. Now pay phones can be coinless and can read credit cards. Soon they will be acquiring keyboards, computer screens and dataports for plugging in fax machines and portable computers. The payphone was invented by William Gray, an American whose previous inventions included the inflatable chest protector for baseball players. Mr. Gray's first phone lacked a dial. Its instructions read:

"Call Central in the usual manner. When told by the operator, drop coin in proper channel and push plunger down." In today's nomenclature, Mr. Gray's original phone is known as a post-pay coin phone. See other entries below.

Payphone-Postpay Calls are paid for after they are completed, typically with a credit card or calling card, etc.

Payphone-Prepay At a coin phone, calls must be paid for before they can be dialed. Virtually all local calls are prepay.

Payphone-Private Referred to as Customer Owned Coin Operated Telephone Companies (COCOTs). Installed and maintained by companies other than local exchange carriers

who are rapidly entering this industry. COCOTs may have access to more than one IXC.

Payphone-Public A coin phone installed in a "public" place. The local operating company is totally responsible for its installation. The phone company will typically pay someone — the city, the bus station owner a commission on the calls made from this phone. Also see PAYPHONE-SEMI-PUBLIC.

Payphone-Semi-Public A coin phone installed for public use but installed in a "semi-public" place, such as a restaurant or bar. The proprietor of the establishment is obliged to guarantee that the phone company will receive a minimum amount of money out of the phone. The phone company will typically not pay a commission on this type of phone and takes all the money in the coin box for itself. What is a "public" and what is a "semi-public" phone is a decision made by the local telephone company for whatever reason it chooses. The pay phone business is rapidly deregulating. It is now legal to own your own payphone.

Paystation, Postpay Calls are paid for after they are completed, typically with a credit or calling card, etc.

Paystation, Prepay Calls must be paid for before they can be dialed. Virtually all local calls are prepay.

Paystation, Public A coin phone installed in a "public" place. The phone company is totally responsible for its installation. The phone company will typically pay someone — the city, the bus station owner a commission on the calls made from this phone. See PAYSTATION, SEMI-PUBLIC.

Paystation, Semi-Public A coin phone installed for public use but installed in a "semi-private" place, such as a restaurant or bar. The proprietor of the establishment is obliged to guarantee that the phone company will receive a minimum amount of money out of the phone. The phone company will typically not pay a commission on this type of phone and takes all the money in the coin box for itself. What is a "Public" and what is a "Semi-Public" phone is a decision made by the local telephone company for whatever reasons it chooses. The pay phone business is rapidly deregulating. So the rules are changing. And it is now legal to own your own payphone.

PBS: Personal Base Station. A PCS (Personal Communications System) term. A PCS subscriber might use a "High-Tier" PCS service, which effectively is cellular service using PCS frequencies. When at home, the PCS set acts as a cordless phone, establishing a wireless link to the PBS. When in close enough proximity to have sufficient signal strength, the PBS takes over from the PCS carrier's cell site. All PBS calls then are routed over the landline PSTN, thereby avoiding cellular usage charges. In a business environment using a PCS wireless office system, the PCS set and the wireless controllers establish the same relationship.

PBX Private Branch eXchange. A private (i.e. you, as against the phone company owns it), branch (meaning it is a small phone company central office), exchange (a central office was originally called a public exchange, or simply an exchange). In other words, a PBX is a small version of the phone company's larger central switching office. A PBX is also called a Private Automatic Branch Exchange, though that has now become an obsolete term. In the very old days, you called the operator to make an external call, except in Europe. Then later someone made a phone system that you simply dialed nine (or another digit — in Europe it's often zero), got a second dial tone and dialed some more digits to dial out, locally or long distance. So, the early name of Private Branch Exchange (which needed an operator) became Private AUTOMATIC Branch Exchange (which didn't need an operator). Now, all

overseas where they still have PBXs that are not automatic.

At the time of the Carterfone decision in the summer of 1968, PBXs were electro-mechanical step-by-step monsters. They were 100% the monopoly of the local phone company. AT&T was the major manufacturer with over 90% of all the PBXs in the U.S. GTE was next. But the Carterfone decision allowed anyone to make and sell a PBX. And the resulting inflow of manufacturers and outflow of innovation caused PBXs to go through five, six or seven generations — depending on which guru you listen to. (See my definition for GENERATIONS in this dictionary). Anyway, by the fall of 1991, PBXs were thoroughly digital, very reliable, and very full featured. There wasn't much you couldn't do with them. They had oodles of features. You could combine them and make your company a mini-network. And you could buy electronic phones that made getting to all the features that much easier. Sadly, by the late 1980s the manufacturers seemed to have finished innovating and were into price cutting. As a result, the secondary market in telephone systems was booming. Fortunately, that isn't the end of the story. For some of the manufacturers in the late 1980s figured that if they opened their PBXs' architecture to outside computers, their customers could realize some significant benefits. (You must remember that up until this time, PBXs were one of the last remaining special purpose computers that had totally closed architecture. No one else could program them other than their makers.) Some of the benefits customers could realize from open architecture included:

- Simultaneous voice call and data screen transfer.
- Automated dial-outs from computer databases of phone numbers and automatic transfers to idle operators.
- Transfers to experts based on responses to questions, not on phone numbers.

And a million more benefits. We discuss them at our annual trade show called TELECOM DEVELOPERS held in May each year. Call 212-691-8215 for more information. For more on open architecture, see OAI.

An alternative to getting a PBX is to subscribe to your local telephone company's Centrex service. For a long explanation on Centrex and its benefits, see CENTREX. Here are some of the benefits of a PBX versus Centrex:

1. Ownership. Once you've paid for it, you own it. There are obvious financial and tax benefits.
2. Flexibility. A PBX is a far more flexible than a central office based Centrex. A PBX has more features. You can change them faster. You can expand faster. Drop another card in, plug some phones in, do your programming and bingo you're live.
3. Centrex benefits. You can always put Centrex lines behind a PBX and get the advantages of both. In some towns, Centrex lines are cheaper than PBX lines. So buy Centrex lines and put them behind your PBX. Make sure you don't pay for Centrex features your PBX already has. (It has most.)
4. PBX phones. There are really no Centrex phones — other than a few Centrex consoles. If you want to take advantage of Centrex features, you have to punch in cumbersome, difficult-to-remember codes on typically single line phones. PBXs have electronic phones, often with screens and dedicated buttons. They're usually a lot easier to work. A lot easier to transfer a call. Conference another, etc. A lot more productive.
5. Footprint savings. Modern PBXs take up room, more than Centrex. But the space they take up is far less than it used to be. PBXs are getting smaller.
6. Voice Processing/Automated Attendants. Centrex's DID (Direct Inward Dialing) feature was always pushed as a big

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Photoconductivity The conductivity increase exhibited by some nonmetallic materials, resulting from the free carriers generated when photon (i.e. light) energy is absorbed in electronic transitions. The rate at which free carriers are generated, the mobility of the carriers, the length of time they persist in conducting states (their lifetime) are some of the factors that determine the extent of conductivity change. See PHOTOCONDUCTIVE EFFECT.

Photoconductor 1. Any transducer that produces a current which varies in accordance with the incident light energy. A fiber optic communications term.

2. Photoconductor is also material, available in many forms (sheets, belts, and drums), which changes in electrical conductivity when acted upon by light. Electrophotography (a form of facsimile machine printing) relies on the action of light to selectively change the potential of a charged photoconductive surface, creating areas receptive to an oppositely charged toner, thus making the latent charged-image visible.

Photocurrent The current that flows through a photosensitive device (such as a photodiode) as the result of exposure to radiant power. Internal gain, such as that in an avalanche photodiode, may enhance or increase the current flow but is a distinct mechanism.

Photodetector In a lightwave system, a device which turns pulses of light into bursts of electricity.

Photodiode See PHOTO DIODE.

Photoelectric Effect The emission of electrons by a material when it is exposed to light. Albert Einstein received a Nobel Prize for explaining this phenomenon. Amazingly, he never received one for his brilliant theories of relativity.

Photon The Photon is a particle of light. For hundreds of years light was thought of solely as a wave. In 1905 Einstein discovered that under certain circumstances the energy of a light wave only came in specific amounts or quanta. These quanta are called photons.

Photophone In 1880 (4 years after he invented the telephone) Alexander Graham Bell invented the photophone, which he felt was his greatest invention. Consisting of a set of specially ground and shaped mirrors, and associated electrical gear, the photophone was capable of voice transmission over short distances, using sunlight. It was, in fact, the first optical transmission system, preceding fiber optics by nearly 100 years. It also was highly impractical, relying on fragile mirrors and sunny days. The Nazis experimented with a variation on the theme for application in W.W.II tank warfare — the results were not positive.

Photon The fundamental unit of light and other forms of electromagnetic energy. Photons are to optical fibers what electrons are to copper wires. Like electrons they have a wave motion.

Photonic Layer The lowest of four layers of Sonet capability, which specifies the kind of fiber to be used including sensitivity and laser type. See SONET.

Photonics The technology that uses light particles (photons) to carry information over hair-thin fibers of very pure glass.

Phototransistor A transistor that detects light and amplifies the resulting electrical signal. Light falling on the base-collector junction generates a current, which is amplified internally.

Photovoltaic Adjective to describe material which develops voltage and electrical current when light shines on it.

Photovoltaic Effect Using light to produce electricity. Shine light on a device, typically a "cell." If the device produces electricity, that's called the photovoltaic effect. It's not

very efficient at present. Less than 10% of the light emerges as electricity. But it's getting better.

PHP Personal Handy Phone. Japan's standard for cordless phones.

Phreaking Employing technology to attack the public phone system and get free long distance service.

PHP See PHS.

PHS Personal Handyphone System. PHS, previously as PHP (Personal HandyPhone). The Japanese version U.S.'s PCS (Personal Communications Service, with key differences. It's not as powerful as PCS. You can't handoff, i.e. it won't move you from one cell to another, thus, if you move outside your cell with PHS, you lose connection. PHS is a perfect mobile phone for pedestrians in density cities like Tokyo. PHS is truly a phenomenon: it grew from zero users to four million plus subscribers in 1996. In the meantime, the (slower) growth of cellular wireline services have been unabated.

PHY PHYSical, as in physical specifications. OSI Physical Layer: The physical layer provides for transmission of over a physical medium connecting two ATM devices; physical layer is comprised of two sublayers: the Physical Medium Dependent sublayer, and the Transmission Convergence sublayer. See PHYSICAL LAYER PMD and TC.

Physical Address A six digit number giving the physical location of an extension within the Rolm CBX. The number in the form of xxyyzz, where xx=shelf, yy=slot and zz=channel.

Physical Colocation A local exchange carrier (LEC) provides space within the building housing its central office other phone companies, to interconnect companies and/or users to place their equipment. Typically it's done to connect circuits — transmission or switching — to the phone company's central office equipment. The interconnector (i.e. the company placing the equipment) installs, maintains, and repairs its own equipment, while the LEC provides power, environmental conditioning, and conduit and riser space in the interconnector's cable.

Physical Connection The full-duplex physical layer association between adjacent PHYs in an FDDI ring.

Physical Delivery Delivery of a message in physical form through a Physical Delivery System; for example, delivery of a letter through the U.S. Postal Service. This term is used in X.400.

Physical Delivery Address Component An X.400 address component that describes how to physically deliver a message. For example, the name and mail stop to hand deliver a message after it is printed. The concept is that the X.400 address would cause a message to be printed on a printer and an individual would complete the hand delivery.

Physical Delivery Office Name Standard attribute of a Postal O/R (Original/Recipient) Address, in the context of physical delivery, specifying the name of the city, town, etc., where the physical delivery is to be accomplished. An X.400 term.

Physical Delivery Office Number Standard attribute in a Postal O/R (Originator/Recipient) Address that distinguishes between more than one physical delivery office within a city, etc. An X.400 term.

Physical Delivery Organization Name A free form name of the addressed entity in the postal address, taking into account the specified limitations in length. An X.400 term.

Physical Delivery Personal Name In a postal

ard in the file server to monitor the UPS. If you have a file server with a microchannel bus (as compared to the more common AT bus), the UPS is monitored through the mouse and does not require a board.

SR Unidirectional Path-Switched Ring. A SONET term. h-switched rings employ redundant fiber optic transmission facilities in a pair configuration, with one fiber transmitting in one direction and with the backup fiber transmitting in the other. If the primary ring fails, the backup takes over. See **PATH SWITCHED RING** and **SONET**.

speak According to Newsweek, upspeak is the annoying teenagers speak.

stream In a communications circuit, there are two circuits — coming to you and going away from you. Upstream is the term for the name of the channel going away from you. In a broadband TV network, the definition of the upstream channel or signal is different. It is the channel from transmitting stations to the CATV headend. See **STREAM CHANNEL**.

stream Channel In a communications circuit, there are two circuits — coming to you and going away from you. Upstream is another term for the name of the channel going away from you. In a broadband TV network, the definition of the upstream channel or signal is different. It is the channel from transmitting stations to the CATV headend. In yet another definition, in the cable TV industry, the upstream is a collection of frequencies on a CATV channel reserved for transmission from the terminal next to the user's (upstream to) the CATV company's computer. Such requests might be requests for pay movies. See **UPSTREAM**.

stream Operations Functions that provide a BCC (or Client Company) control of features and service operations and subject to BCC control, some service capabilities for subscribers. These functions include Service Negotiation and Management, Service Monitoring and Repair Service Answering/Work Force Administration. Definition from Bellcore in reference to its part of the Advanced Intelligent Network.

Universal Personal Telecommunications. According to Ericsson, Swedish telecom manufacturer, UPT is a "new concept in the field of telecommunications which makes telecommunications both universal and personal instead of calling a telephone line or a mobile terminal, the person you wish to get in touch with and leave it up to the person to locate the line or terminal where he/she can be reached." There was an article on UPT in the 1993 No. 4 of the Ericsson Review. An article in the June, 1996 IEEE Communications Magazine described UPT as a service that enables users to access various services through a single point of access. It enables each UPT user to participate in a single set of subscribed services, and to initiate and terminate calls on the basis of a personal, network transparent number across multiple networks on any fixed or mobile device, irrespective of geographical location. This service is controlled by terminal and network capabilities and restrictions by the network operator. In short, UPT is still very much defined and is under discussion by the world's standards bodies. For more information on UPT, see Recommendation F.850, Principles for Universal Telecommunications, Geneva, 1993.

Colloquial expression for the uninterrupted amount of network or computer resources are working and available to a user. In short, time between failures or periods of unavailability (as for maintenance).

Upward Compatible Any device that can be easily organized, fixed or configured to work in either a different, expanded or operating environment or some enhanced mode. Software is said to be upward compatible if a computer larger than the one for which it was written can run the program.

Urban Service Any of the grades of service regularly furnished inside base or locality rate areas, or outside base or locality rate areas at base or locality rates plus zone connection charges or incremental rates. Another way of saying expanded metropolitan phone service.

URL Universal Resource Locator. An Internet term. A URL is a fancy name for an address on the World-Wide Web. In more technical terms, a URL is a string expression that can represent any resource on the Internet or local TC/IP system. The standard convention for a URL is as follows:

method://host_spec {port} {path} {file} {misc}
Here's an example of a URL and what its bits and pieces mean:
http://www.ctexpo.com/cte_home.html
RFC 1738 defines the syntax for an URL. An address for a Website

such as <http://www.flatironpublishing.com> brings you to the opening screen — or home page — of the publisher of this dictionary's web site. In general <http://> can be safely omitted with most browsers and you'll still get to the site. See **UNIVERSAL RESOURCE LOCATOR**.

URM User request manager.

US Sprint An old name for Sprint Corporation, the long distance carrier.

US West One of the seven Regional Holding Companies formed at divestiture. It includes Mountain Telephone, Northwestern Bell and Pacific Northwest Bell among other service entities and entrepreneurial adventures.

USA Direct An AT&T service designed for those calling the U.S. from overseas. Callers in foreign countries dial a toll-free number in that country. That call gets them to an AT&T operator in the U.S. who lets them make calls to the U.S. with their AT&T calling card or by making a collect call. AT&T calls the service USADirect — one word. It would look like a mistake if I spelled it that way in this dictionary. MCI has a similar service called "Call USA." This is a form of international callback, although AT&T and MCI prefer not to think of it that way — international callback remains illegal in most foreign countries. By international carrier agreement, AT&T and MCI have legalized these services. See **INTERNATIONAL CALLBACK**.

USCII See ASCII. The name change was a result of the name change of the standards organization. When the name changed again to ANSI, most people simply reverted to ASCII.

Usage A measurement of the load carried by a server or group of servers, usually expressed in CCS. Usage may also be expressed in erlangs.

Usage Based Usage-Based refers to a rate or price for telephone service based on usage rather than a flat, fixed monthly fee. Until a few years ago, most local phone service in the United States was charged on a flat rate basis. Increasingly, phone companies are switching their local charging over to usage-based. Flat-rate calling will probably disappear within a few years. Allegedly, usage based phone service pricing is fairer on those phone subscribers who don't use their phone much. Usage based pricing is not consistent throughout the U.S. Typically, you get charged for each call. And the charging is very much like that for long distance — by length of call, by time of day and by distance called. See also **FLAT RATE**.

Usage Sensitive A form of Measured Rate Service. See **USAGE BASED**.

USART Universal Synchronous/Asynchronous Receiver/Transmitter. An integrated circuit chip that handles the I/O (input/output) functions of a computer port. It converts data coming in parallel form from the CPU into serial form suitable for transmission, and vice versa.

USB Universal Serial Bus. In March of 1995, Compaq, Digital, IBM, Intel, Microsoft, NEC and Northern Telecom announced a new "open and freely licensed" serial bus called Universal Serial Bus — USB for short. The bus (which could also be called a special purpose local area network) is 12 megabits per seconds and supports up to 63 devices. The idea of Universal Serial Bus is to replace the PC cable clutter. USB's proponents showed a diagram of a future PC with only three ports out the back — a USB, a graphics port (for your monitor) and a LAN port. Gone were the parallel, serial, graphics, modem, sound/game and mouse ports. USB is designed to handle a broad range of devices — telephones (analog, digital and proprietary), modems, printers, mice, joysticks, scanners, keyboards, tablets. USB is designed to be "completely Plug and Play," meaning that devices will be correctly detected and configured automatically as soon they are attached. USB also has "Hot attach/detach," which allows adding and removing devices at any time, without powering down or rebooting. USB uses a connector, currently in design. The mockup I saw was the size of your pinky finger. Topology is tiered star, with up to five meters per segment. At each star is a hub or pod with connections to other devices and pods. Hubs function as repeaters, providing power for devices, routing signals in each direction and providing terminations for each line. Some devices, e.g. proprietary PBX phones, are expected to come with their own built in pods. A phone pod will allow a PBX manufacturer to pass call and media control to the desktop PC. PBX makers are likely to go for this choice, since it enables them to continue selling proprietary PBX phones, which, today, are a very profitable part of their business. USB is sophisticated in that it will handle certain "important" data streams — e.g. voice and video — with preference. Serial Bus has three basic types of data transfer:

- Isochronous or streaming real time data which occupies a prenegotiated amount of Serial Bus bandwidth with a prenegotiated latency. (This would be for voice and video.)
- Asynchronous interactive data such as characters or coordinates with few human perceptible echo or feedback response characteristics (e.g. tele-gaming).
- Asynchronous block transfer data which is generated or consumed in relatively large and bursty amounts and has wide dynamic latitude in transmission constraints.

Does USB mean T-1 or E-1 to every desktop? Potentially, yes. It's certainly powerful enough. USB is 7.8 times the speed of T-1. In the meantime, ISDN may be the major beneficiary, according to its proponents. Timetable: 0.9 specification: call 1-800-433-3652 and for \$35, they'll send you the 250-page document. Or pick it up for free through the World Wide Web. The address is <http://WWW.teleport.com/~USB>. 1.0 spec. available in June 1995. Developers' kits in Q3, 1995. USB is expected to be a standard feature in PC chipsets (from Intel and others) in Q4 1995) and PCs in Q1 1996. USB connectors have four pins.

USDLA United States Distance Learning Association. Their mission: The delivery of education or training through electronically mediated instruction including satellite, video, audio-graphic, computer, multimedia technology and other forms of learning at a distance. 800-275-5162 or 510-606-5160.

Used Equipment which was previously in service (i.e. used

TIE 1. Joining cables and/or wires together.

2. Time Interval Error.

3. Trusted Information Environment, an encryption scheme.

TIE/Communications A PBX and key system distributor to end users based in Seymour, CT. TIE was one of the original manufacturers of interconnect equipment in the US. TIE stood for Telephone Interconnect Equipment. The company fell on hard times in the late 1980s. It ceased manufacturing equipment and ceased acting as a wholesaler of others' equipment. Now it's simply a distributor and Nitsuko, its primary Japanese supplier, has taken over the sale of its own equipment directly.

Tie Down Verb meaning to terminate a wire on a main, intermediate or satellite distribution frame.

Tie Line A dedicated circuit linking two points without having to dial the normal phone number. A tie line may be accessed by lifting a telephone handset or by pushing one, two or three buttons.

Tie Trunk A dedicated circuit linking two PBXs.

Tie Trunk Access Allows a phone system to handle tie lines which can be accessed either by dialing a trunk group access code or through the attendant.

TIFF Tag Image File Format. TIFF provides a way of storing and exchanging digital image data. Aldus Corp., Microsoft Corp., and major scanner vendors developed TIFF to help link scanned images with the popular desktop publishing applications. It is now used for many different types of software applications ranging from medical imagery to fax modem data transfers, CAD programs, and 3D graphic packages. The current TIFF specification supports three main types of image data: Black and white data, halftones or dithered data, and grayscale data. Some wags think TIFF stands for "Took It From a Fotograf." It doesn't.

TIES Time Independent Escape Sequence, a feature of modems.

Tiger Team A group hired by an organization to defeat its own security system to learn its weaknesses.

Tight Buffer Fiber Optic Cables Tight-buffered fiber optic cables use aramid strength members inside the cable instead of gel filling, as is the case with loose-tube gel-filled fiber optic cables. One of the advantages of tight-buffered fiber optic cables having aramid strength members along every inch of the cable is that the cable can be hung vertically and the fibers are still protected for the entire length of the cable. This is not the case with loose-tube gel-filled fiber optic cables because, when they are hung vertically, all the gel filling settles to the bottom and the optical fibers are no longer protected. Tight-buffered fiber optic cables also have buffer coatings (up to 900 microns) over each optical fiber cladding for added environmental and mechanical protection, increased visibility, and ease of handling. Tight-buffered fiber optic cables can be used indoors and outdoors which allows one cable to be used instead of having to switch cable types at the building entrance. This is different from loose-tube gel-filled cables because the gel is flammable and the cable must be spliced to indoor flame-retardant cables for runs into buildings. Therefore, according to manufacturers, tight-buffered fiber optic cables reduce labor, equipment and materials cost while improving system performance and reliability. See also Aramid and Tight Jacket Buffer.

Tight Jacket Buffer A buffer construction which uses a direct extrusion of plastic over the basic fiber coating. This construction serves to protect the fiber from crushing and impact loads and to some extent from the microbending

induced during cabling operations. See also LOOSE-BUFFER.

Tightly Coupled Describing the interrelationship of processing units that share real storage, that are controlled by the same control program and that communicate directly with each other. Compare with loosely coupled.

Tightly Coupled CPUs Term used to describe multi-processor computers in which several processors share the same memory and bus.

Title A surface segment of a furniture system panel, usually removable for access to cables or patch panels contained within the panel.

Tiling An unpleasant mosaic-like effect created by block-coded video compression techniques like DCT (Discrete Cosine Transform), used in the JPEG (Joint Photographic Experts Group) standard. See DCT and JPEG.

TIM Teletypewriter Input Method. See TELETYPE INPUT METHOD.

Timbre The quality of tone distinctive to a particular voice.

Time-based Authoring Tool A multimedia creation tool that uses time as a metaphor for building a project. Generally, objects are set up to happen at a certain time in a project, rather than in a certain place.

Time Assignment Speech Interpolation TASI voice telephone technique whereby the actual presence of a speech signal activates circuit use. The result is clipping of the first bit of the speech, but more efficient use of the transmission facility. TASI is used on expensive circuits, such as long submarine cables. See TASI.

Time Congestion The time resources (outgoing trunk lines) are busy.

Time Divert To Attendant A system feature which automatically transfers a phone to the attendant if the phone has been left off-hook too long.

Time Diversity A method of transmission wherein a signal representing the same information is sent over the same channel at different times. Often used over systems subject to burst error conditions and with the spacing adjusted to be longer than an error burst.

Time Division Controller TDC. A device which commands functions, monitors status and connects channels to TDM cards.

Time Division Multiple Access TDMA. A technique originated in satellite communications to interweave multiple conversations into one transponder so as to appear to get simultaneous conversations. A variation on TASI. A technique now used in cellular and other wireless communications. See TDMA.

Time Division Multiplex TDM. A technique for transmitting a number of separate data, voice and/or video signals simultaneously over one communications medium by quickly interleaving a piece of each signal one after another. Here's our problem. We have to transport the freight of five manufacturers from Chicago to New York. Each manufacturer's freight will fit into 20 rail boxcars. We have three basic solutions. First, build five separate railway lines from Chicago to New York. Second, rent five engines and schlepp five complete trains to New York on one railway track. Or, third, join the boxcars together into one train of 100 boxcars and run them on one track. The train might look like this: Engine, Boxcar from Producer A, Box Car from Producer B, Producer C, Producer D, Producer E, and then the order begins again...Boxcar from Producer A, Producer B...Moving on, a large train of 100 boxcars is likely to be cheaper and more efficient than moving five smaller trains each of 20 boxcars.